

## **TOD Choice Study – Select bibliography of recent relevant work**

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## **TOD Choice Study – Select annotations/summaries for bibliography**

Beldan, Russonello & Stewart. (2004). *2004 National Community Preference Survey*. Conducted for Smart Growth America and National Association of Realtors. Retrieved from <http://www.smartgrowthamerica.org/documents/NAR-SGASurvey.pdf>

BRS conducted a national random sample survey of 1130 adults, using a random digit dial telephone methodology. The 2004 National Community Preference Survey covers many opinions that Americans hold about where they live, where they would like to live, and the policies for getting there. The survey reveals three main points:

- 1) Americans favor smart growth communities with shorter commute times, sidewalks, and places to walk more than sprawling communities.
- 2) The length of their commute to work holds a dominant place in Americans' decisions about where to live. Americans place a high value on limiting their commute times and they are more likely to see improved public transportation and changing patterns of housing development as the solutions to longer commutes than increasing road capacities. This unambiguous finding suggests that, while public policies are going in one direction, public opinion is running down another path.
- 3) Americans want government and business to be investing in existing communities before putting resources into newer communities farther out from cities and older suburbs. The public's priorities for development include more housing for people with moderate and low incomes and slowing the rate of development of open space. Many Americans also express the desire for more places to walk or bike in their communities.

California Homebuilding Foundation. (2007). *The Housing Bottom Line: Fiscal Impact of New Home Construction on California Governments*. Retrieved from <http://www.cbia.org/go/cbia/?LinkServID=15E85BB6-0ECB-6F37-179D4439C07525A3&showMeta=0>

New home production has long been recognized as representing a significant element of the California economy. In fact, a study in 2006 concluded that new housing alone contributes nearly \$69 billion a year to the state's economy and employs almost a half a million Californians. However, the fiscal impact of housing on state and local governments has been the subject of far less analytical examination. Although consulting firms and other researchers routinely look at the fiscal effects of individual development projects on cities and counties, not until now has there been a full, authoritative analysis of those impacts statewide. In the absence of this kind of analysis, many local officials have operated under the assumption that new residential construction is a fiscal drain — that housing doesn't "pay its own way." In many cases this has caused local jurisdictions to choose retail over residential development in search of maximum financial return.

This study concludes that new housing construction in fact produces substantial fiscal benefits to state and local governments in California, showing that new housing more than pays its own way. Each newly constructed home in California is a net fiscal winner — generating an average of \$16,000 in tax revenues to the state treasury and an average of \$3,000 to the permitting local government, and the fiscal rewards are ongoing — \$3,500 annually to the state and \$1,000 per home per year to local communities.

Cervero, R. (2007). Transit-oriented development's ridership bonus: a product of self-selection and public policies. *Environment and Planning A*, 39(9), 2068-2085. Retrieved from <http://www.envplan.com/abstract.cgi?id=a38377>

Cervero demonstrates that the increase in transit ridership from transit oriented development is partly due

to residential self-selection, i.e., a life-style preference for transit oriented living, as well as factors like employer-based policies that reduce free parking and automobile subsidies. Within a half-mile, residents generally ride transit regardless of local urban design attributes, whereas job accessibility and street connectivity at the destination have a significant bearing on transit usage. Findings of self-selection underscore the importance of breaking down barriers to residential mobility and introducing market responsive zoning in and around transit nodes – zoning that acknowledges that those living near transit tend to be in smaller households with fewer cars. Flexible parking standards and location efficient mortgages would further “grease the path” toward self-selection into TODs.

Cervero, R., Adkins, A. & Sullivan, C. (2009). *Are TODs Over-Parked?* Berkeley, CA: University of California Transportation Center Research Paper No. 882. Retrieved from [http://repositories.cdlib.org/uctc/882\\_summer\\_2009/](http://repositories.cdlib.org/uctc/882_summer_2009/)

This report empirically investigates the proposition that TOD, and specifically housing near suburban rail stops, is “over-parked” in the U.S. This is done by comparing parking generation rates for 31 housing complexes near rail stops in the San Francisco Bay Area and Portland, Oregon with on-site parking supplies and with ITE parking generation rates. Factors that explain parking demand for transit-oriented housing are also investigated, both statistically and through case analyses. The results of a national survey on parking codes and variances for 80 U.S. cities with rail stops are also presented. The paper ends with several policy prescriptions that fall out of the research findings.

Cervero, R. & Duncan, M. (2002). *Residential Self Selection and Rail Commuting: A Nested Logit Analysis*. Working Paper. Berkeley, CA: University of California Transportation Center. Retrieved from <http://www.uctc.net/papers/604.pdf>

Past studies show that those living near train stations tend to rail-commute far more often than the typical resident of rail-served cities. Some contend this is largely due to self selection, marked by those with an affinity to transit riding consciously moving into neighborhoods that are well-served by transit. This article explores the self-selection question by constructing a nested logit model that jointly estimates the probability someone will reside near a rail stop and in turn commute by rail transit, using year 2000 travel data from the San Francisco Bay Area. A multinomial logit model is also used to predict car ownership levels. The research reveals that residential location and commute choice are jointly related decisions among station-area residents. A comparison of odds ratios among those living near and away from transit, controlling for the influences of other factors, suggests that residential self-selection accounts for approximately 40 percent of the rail-commute decision. These findings suggest that supportive zoning should be introduced and barriers to residential mobility should be eliminated to allow the self-selection process to occur naturally through the marketplace.

Cervero, R., Murphy, S., Ferrell, C., Goguts, N., Tsai, Y.-H. & Arrington, G. (2004). *TCRP Report 102: Transit Oriented Development in the United States: Experiences, Challenges and Prospects*. Washington D.C.: Transportation Research Board. Retrieved from [http://www.mapc.org/transportation/trans\\_alternatives/transit\\_PDFs/3b\\_TOD\\_TransCoopResearchProg.pdf](http://www.mapc.org/transportation/trans_alternatives/transit_PDFs/3b_TOD_TransCoopResearchProg.pdf)

This report provides a comprehensive assessment of the state of the practice and the benefits of transit-oriented development (TOD) and joint development throughout the United States. This report will be helpful to transit agencies, the development community, and local decision makers considering TOD. The research team performed a literature review, conducted a comprehensive survey, performed interviews, and generated case studies from ten U.S. metropolitan areas including the San Francisco Bay Area.

The report focuses on TOD and joint development and practice; the level of collaboration between various partners (e.g., the development community, financial partners, planning and land-use agencies,



and government entities); the impacts of TOD and joint development on land values; the potential benefits of TOD; and successful design principles and characteristics.

Chatman, D. (2006). *Transit Oriented Development and Household Travel: A Study of California Cities*. University of California, Los Angeles, Institute of Transportation Studies. Retrieved from [http://www.policy.rutgers.edu/faculty/chatman/documents/TODs\\_and\\_travel\\_in\\_CA.pdf](http://www.policy.rutgers.edu/faculty/chatman/documents/TODs_and_travel_in_CA.pdf)

This study randomly selected households and workers of all firms from within a 0.4 mile radius around selected rail stops in San Diego and the San Francisco Bay Area to explore the effects of transit proximity, population density, retail density and other TOD features on the travel mode. The survey was conducted as a 24-hour activity and travel diary collected by phone. In addition, those living in the larger metropolitan area were surveyed and the information compared.

It concludes that people living or working near rail stations have a higher non-auto share of commuting and non-work travel, but the effect is driven by rail stations very close to major job centers, and is not as strong for outlying rail stations. The study suggests that the most strongly correlated built environment variables seem to reduce the convenience of auto use, and that previous research concluding that better walking and transit opportunities cause lower auto use may be erroneous. Less frequent auto use is strongly related to slower auto speeds due to congestion. TODs that accommodate the automobiles with wide streets are substantially less likely to experience high per capita transit ridership; the cost and availability of parking also significantly affect auto convenience and use levels. Parking standards should be thought of as a factor causing auto use by lowering its price and by encouraging auto-using households to live near transit, rather than auto use causing the need for parking.

Finally, TOD policies should adopt a regional focus, attempting to increase the accessibility value of the transit system itself – that is, on increasing the density of origins and destinations near stations on the line. A TOD policy geared to funding projects on a building by building basis next to transit stops is not likely to be effective; a more comprehensive approach involving regulatory reforms that allow larger scale intensification is needed for significant effects to be found.

Coogan, M., Karash, K., Adler, T., & Sallis, J. (2007). The Role of Personal Values, Urban Form and Auto Availability in the Analysis of Walking for Transportation. *American Journal of Health Promotion*, 21(4 Suppl), 363-370. Retrieved from [http://www.newenglandtransportationinstitute.org/personal\\_values.pdf](http://www.newenglandtransportationinstitute.org/personal_values.pdf)

865 Adults who had recently made or were contemplating making a residential move were surveyed as to their mode of transportation for nine different trip purposes, their personal values and attitudes regarding urban and environmental attributes of the built environment, their neighborhood type, and their auto availability. Study participants lived in one of eleven different urban locations. Using structural equation modeling, urban environmental values ( $r = .21$ ), living in a compact neighborhood ( $r = .18$ ), and number of automobiles per person ( $r = -.24$ ) were each associated with walking for all trip purposes. Income ( $r = .08$ ) was the only demographic variable to enter into the model. A key finding of this study is that people who have all three factors of positive values for walkable neighborhoods, live in walkable neighborhoods, and have limited automobile availability reported walking for transportation scores that were five times higher than people without those characteristics.

Cortright, J. (2009). *Walking the Walk – How Walkability Raises Home Values in U.S. Cities*. Chicago: CEOs for Cities. Retrieved from: [http://www.ceosforcities.org/files/WalkingTheWalk\\_CEOsforCities1.pdf](http://www.ceosforcities.org/files/WalkingTheWalk_CEOsforCities1.pdf)

This paper explores the connection between home values and walkability, as measured by the Walk Score algorithm. Using an economic technique called hedonic regression, the author estimates how much market value homebuyers implicitly attach to houses with higher Walk Scores. Data for more than 90,000 recent home sales in 15 different markets around the nation is looked at. After

controlling for all of these other factors that are known to influence housing value, the study shows a positive correlation between walkability and housing prices in 13 of the 15 housing markets studied. In the typical market, an additional one point increase in Walk Score was associated with between a \$700 and \$3,000 increase in home values.

Dill, J. (2006). *Travel and Transit Use at Portland Area Transit Oriented Developments (TODs)*. Seattle, WA: University of Washington, Transportation Northwest. Retrieved from <http://www.transnow.org/publication/final-reports/documents/TNW2006-03.pdf>

This study focused on a survey of 300 residents near four different light rail stations in the Portland region, from neighborhoods of different types of TOD. Key findings include that:

Responding households in the neighborhoods tend to be smaller and with fewer children;

- Some of the TODs appear to be attracting older adults;
- The residents of the surveyed TODs are not transit dependent; the varying physical features of the TODs do not appear to affect transit commuting;
- Distance from home to the transit station may not affect the level of transit commuting but does affect the mode used to get to the station;
- A significant share of respondents now commute by transit who did not before;
- The features of the TODs appear to affect non-commute travel mode choices; and
- A majority of respondents in all the neighborhoods report they are using transit and walking more and driving less now compared to where they used to live.

Further analysis of the data will help sort out the relationships between urban form and travel behavior, including the relative importance of demographics and travel preference.

Evans, IV, J. & Pratt, R. (2007). *TCRP Report 95: Traveler Response to Transportation System Changes Chapter 17-Transit Oriented Development*. Washington, D.C.: Transportation Research Board. Retrieved from [http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp\\_rpt\\_95c17.pdf](http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_95c17.pdf)

This long chapter of the much longer report focuses on the transit oriented development (TOD) land use strategy and its transportation impacts, organized along three dimensions that significantly characterize TODs: regional context, land use mix, and primary transit mode. It provides an extensive review of a large number of new studies, as well as synthesized research, including suggested "TOD Index" indicators to describe development project "TOD-ness." This report is part of TCRP's Traveler Response to Transportation System Changes Handbook series. The objective of the Handbook is to equip members of the transportation profession with a comprehensive, readily accessible, interpretive documentation of results and experience obtained across the United States and elsewhere.

Gard, J. (2007). Innovative Intermodal Solutions for Urban Transportation Paper Award: Quantifying Transit-Oriented Development's Ability to Change Travel Behavior. *ITE Journal*, 77(11), 42-46. Retrieved from [http://findarticles.com/p/articles/mi\\_qa3734/is\\_200711/ai\\_n21185556/](http://findarticles.com/p/articles/mi_qa3734/is_200711/ai_n21185556/)

This article demonstrates the application of transit ridership rates and reduced vehicle trip rates for transit-oriented developments, using data calibrated for TODs in Sacramento. The reduced vehicle trip estimates begin with standard ITE trip generation rates, and then apply reductions for both work and non-work trips, for am, pm and daily travel. The adjustment procedure is based on survey results from the Lund, Cervero and Willson study. The purpose of the adjustment approach is to illustrate how an analyst may explicitly account for a project's diversity of land uses (through internal trip making) and accessibility to transit when estimating its external vehicle trip generation. This is expected to be useful for purposes of CEQA analyses of mixed-use developments next to transit. The methodology does not consider the effect of density. It is intended to be used to study TODs in other regions, particularly those with comparable automobile use characteristics as Sacramento; caution is advised in applying this methodology in regions that are heavily transit dependent and have lower automobile ownership rates, and for ridership at new

light rail stations by existing residents or office workers, where the effect of self selection must be considered as a significant phenomenon.

Handy, S., Xinyu C., & Mokhtarian, P. (2006). Self-Selection in the Relationship between the Built Environment and Walking. *Journal of the American Planning Association*, 72(1), 55-74. Retrieved from [http://www.dot.ca.gov/researchconn/past\\_speakers/DrHandy/handy\\_et\\_al\\_2006.pdf](http://www.dot.ca.gov/researchconn/past_speakers/DrHandy/handy_et_al_2006.pdf)

Available evidence establishes correlations between the built environment and walking, but not a causal relationship, leading researchers to debate whether "self-selection" explains the observed correlations: do residents who prefer to walk choose to live in more walkable neighborhoods? Using data from a survey of residents of eight neighborhoods in Northern California, this article presents new evidence on the possibility of a causal relationship between the built environment and walking behavior. This work improves on most previous studies by incorporating travel attitudes and neighborhood preferences into the analysis of walking behavior, and by using a quasi-longitudinal design to test the relationship between changes in the built environment and changes in walking. Both analyses show that the built environment has an impact on walking behavior even after accounting for attitudes and preferences.

Hoban, S. (2005). What Drives TOD? *Commercial Investment Real Estate*, Nov/Dec 2005. Retrieved from [http://www.ciremagazine.com/article.php?article\\_id=870](http://www.ciremagazine.com/article.php?article_id=870)

High gas prices, traffic congestion, and long commutes increase the desire for transit-oriented developments – as reported from the perspective of real estate professionals.

Johnson Gardner. (2007). *An Assessment of the Marginal Impact of Urban Amenities on Residential Pricing*. Retrieved from [http://www.westgatesale.com/attachments/docs/JohnsonGardner\\_Urban\\_Living\\_Infra\\_Research\\_Report.pdf](http://www.westgatesale.com/attachments/docs/JohnsonGardner_Urban_Living_Infra_Research_Report.pdf)

The results of this hedonic pricing study of urban amenities on residential housing prices in Portland indicate that the proximate availability of a range of urban amenities have a substantive impact on achievable residential pricing. Financial viability has been consistently identified as the primary obstacle to achieving higher density urban development forms in many markets. As achievable pricing is directly related to project viability, this study indicates that a strategy to support and expand the urban amenity base in an area is supportive of realizing more urban residential development patterns.

Karash, K., Coogan, M., Adler, T., Cluett, C., Shaheen, S., Aizen, I. & Simon, M. (2008). *TCRP Report 123, Understanding How Individuals Make Travel and Location Decisions: Implications for Public Transportation*. Washington D.C.: Transportation Research Board. Retrieved from [http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp\\_rpt\\_123.pdf](http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_123.pdf)

The objective of this research is to guide public transportation planners and marketers, multimodal transportation planners, modelers, researchers, and policy makers in understanding how travelers' choices are influenced by their larger social context. The research will employ tenets of learning theory, including social learning theory, to examine how individuals choose where to live and work and how they travel; the implications of this examination on the planning, design, and marketing of transportation systems will be reported.

Research, to date, has failed to reveal a critically important dimension of travel behavior--how travel decisions are affected by travelers' larger social context. To address this issue, this research is intended to illuminate what has been referred to as "learning theory" or "social learning theory"---to better understand how people learn from one another through observation, imitation, and modeling, and how this learning is transferred. Research into learning theory in general, and social learning in particular, will produce insight



into how and when (i.e., what stages of life) individual and social perceptions and preferences, regarding where people choose to live and work and how they travel, are learned.

In analyzing the impact of attitude (green values / non-green values) and location characteristics (compact neighborhood/other locations), the preliminary conclusions are that there is a large group of people that has positive attitudes towards some aspects of urban living and also might be called pro-environment, and that travel behavior is dependent both on these attitudes and on the constraints of life cycle and location.

Khan, L. K., Sobush, K., Keener, D., Goodman, K., Lowry, A., Kakietek, J., Zaro, S. (2009). Recommended Community Strategies and Measurements to Prevent Obesity in the United States. *Morbidity and Mortality Weekly Report*, 58(RR07),1-26. Retrieved from <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5807a1.htm>

A new report from the Centers for Disease Control says that planning may play a significant role in reducing the obesity epidemic in the United States. The report, which compiles numerous research studies and recommendations of experts, provides additional scientific backing for the healthy design movement that has started to gain traction during recent years.

The report recommends 24 community strategies to prevent obesity, including nine recommendations related directly to land use planning. These are: improve geographic availability of supermarkets in underserved areas, provide incentives to food retailers to locate in and/or offer healthier food beverage choices in underserved areas, improve access to outdoor recreational facilities, enhance infrastructure supporting bicycling, enhance infrastructure supporting walking, locate schools within easy walking distance of residential areas, improve access to public transportation, zone for mixed-use development, enhance traffic safety in areas where persons are or could be physically active.

Levine, J. (2005). *Zoned Out: Regulation, Markets, and Choices in Transportation and Metropolitan Land-Use*. RFF Press.

Researchers have responded to urban sprawl, congestion, and pollution by assessing alternatives such as smart growth, new urbanism, and transit-oriented development. Underlying this has been the presumption that for these options to be given serious consideration as part of policy reform, science has to prove that they will reduce auto use and increase transit, walking, and other physical activity. *Zoned Out* forcefully argues that the debate about transportation and land-use planning in the United States has been distorted by a myth - the myth that urban sprawl is the result of a free market. According to this myth, low-density, auto-dependent development dominates U.S. metropolitan areas because that is what Americans prefer. [javascript:HandleLink\('cpe\\_12979\\_0','http://store.rffpress.org/'\);](http://store.rffpress.org/)

Levine confronts the free market myth by pointing out that land development is already one of the most regulated sectors of the U.S. economy. Noting that local governments use their regulatory powers to lower densities, segregate different types of land uses, and mandate large roadways and parking lots, he argues that the design template for urban sprawl is written into the land-use regulations of thousands of municipalities nationwide. These regulations and the skewed thinking that underlies current debate mean that policy innovation, market forces, and the compact-development alternatives they might produce are often "zoned out" of metropolitan areas.

Levine articulates an important paradigm shift. Where people believe that current land-use development is governed by a free-market, any proposal for policy reform is seen as a market intervention and a limitation on consumer choice, and any proposal carries a high burden of scientific proof that it will be effective. By reorienting the debate, Levine shows that the burden of scientific proof that was the lynchpin of transportation and land-use debates has been misassigned, and that, far from impeding market forces or limiting consumer choice, policy reform that removes regulatory obstacles would enhance both. A groundbreaking work in urban planning, transportation and land-use policy, *Zoned Out* challenges a

policy environment in which scientific uncertainty is used to reinforce the status quo of sprawl and its negative consequences for people and their communities.

Levine, J. & Inam, A. (2004). The Market for Transportation-Land Use Integration: Do Developers Want Smarter Growth than Regulations Allow? *Transportation* 31: 409–427. Retrieved from: <http://hdl.handle.net/2027.42/43529>

Levine studies U.S. developers' perceptions of the market for pedestrian and transit oriented development forms through a national survey of 676 respondents. Overall, respondents perceive considerable market interest in alternative development forms, but believe that there is inadequate supply of such alternatives relative to market demand. Rather than a market failure, the paucity of "smart growth" alternatives may be the result of municipal regulatory exclusion. Majorities of developers report that relaxation of regulations would lead them to develop in a denser and more mixed-use fashion.

Litman, T. (2009). *Where We Want To Be – Home Location Preferences And Their Implications For Smart Growth*. Victoria, B.C.: Victoria Transport Policy Institute. Retrieved from: [www.vtpi.org/sgep.pdf](http://www.vtpi.org/sgep.pdf)

This report investigates consumer housing location preferences and their relationship to smart growth. It examines claims that most households prefer sprawl-location housing and so are harmed by smart growth policies. This analysis indicates that smart growth tends to benefit consumers in numerous ways. Market research indicates that most households want improved accessibility (indicated by shorter commutes), land use mix (indicated by nearby shops and services), and diverse transport options (indicated by good walking conditions and public transit services) and will often choose small-lot and attached homes with these features. Demographic and economic trends are increasing smart growth demand, causing a shortage of such housing. Demand for sprawl housing is declining, resulting in oversupply and reduced value. The current stock of large-lot housing is adequate for the foreseeable future, but the supply of small-lot and attached housing will need to approximately double by 2025 to meet growing demand.

Metropolitan Transportation Commission (MTC). (2006). *Characteristics of Rail and Ferry Station Area Residents in the San Francisco Bay Area: Evidence from the 2000 Bay Area Travel Survey*. Retrieved from [http://www.mtc.ca.gov/planning/smart\\_growth/stars/](http://www.mtc.ca.gov/planning/smart_growth/stars/)

The results presented in this work clearly indicate that those living (and working) close to rail/ferry transit use transit, walk and bike much more than people living farther from a rail/ferry stop. Whether being near rail/ferry transit simply allows people who prefer to drive less that personal choice, or whether it creates a greater interest in such travel options, this research demonstrates that policies to support transit-oriented development hold promise as one important tool, among others, in addressing congestion, transit usage, non-motorized travel, and air pollution in the Bay Area.

Morpace International & Cambridge Systematics. (1999). *TCRP Report 47, A Handbook for Measuring Customer Satisfaction and Service Quality*. Washington D.C.: Transportation Research Board. Retrieved from [http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp\\_rpt\\_47-a.pdf](http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_47-a.pdf)

The primary focus of this handbook is how to measure customer satisfaction and how to develop transit agency performance measures in response to research findings. These are key elements of an ongoing customer satisfaction monitoring process. This handbook proposes a new, simpler "impact score" or problems encountered approach. This approach determines the relative impact of service attributes on overall satisfaction, when a recent problem with the attribute is reported. Since the primary way transit agencies can improve customers' overall satisfaction with service is to reduce customers' problematic experiences, the goal is to identify those attributes which have the greatest negative impact on overall satisfaction and the greatest number of customers encountering a problem. These "driver attributes" can be identified and prioritized in a three step process. Large sample and subsample sizes, and multivariate analysis techniques, are not required.

Park, S. (2008). *Defining, Measuring, and Evaluating Path Walkability, and Testing Its Impacts on Transit Users' Mode Choice and Walking Distance to the Station*. PhD dissertation, University of California, Berkeley.

This thesis successfully validates the hypothesis that neighborhood walkability around a transit station is a significant factor in the walk share of tripmakers accessing the transit station. A binomial logit mode choice model supports the hypothesis, wherein the walkability factor (consisting of sidewalk amenities, traffic impacts, street scale and enclosure and landscaping elements) was found to account for a significant amount of error in a previous model from which the walkability factor was absent. An interesting finding is that “the influence of path walkability on mode choice is even greater in a critical walking zone between 0.5 and 1.5 mile path distance from the station”. The author suggests that improving walkability in this donut-shaped area is crucial to achieve ridership on transit.

Renne, J. (2007). *Measuring the Performance of Transit-Oriented Developments in Western Australia*. Australia: Planning and Transport Research Center. Retrieved from [http://www.vtpi.org/renne\\_tod\\_performance.pdf](http://www.vtpi.org/renne_tod_performance.pdf)

This report makes recommendations regarding measurement of the performance of transit oriented developments (TODs) using a holistic perspective based on liveability and sustainability. Recent studies in the United States, particularly in New Jersey and California, provide a framework for measuring TOD performance and demonstrate a means for dissemination of performance data through an online TOD searchable database. The report has been prepared for the TOD Coordinating Committee of the State Government of Western Australia, as a basis for a program to monitor the future performance of transit oriented developments which may be implemented in Perth, Western Australia. The method reported here recommends longitudinal measurement of performance indicators in six categories, including travel behaviour, the local economy, the natural environment, the built environment, the social environment and the policy context. Data have been collected and reported here in these categories in five potential TOD precincts in Perth metropolitan area.

Renne, J. & Wells, J. (2005). *Transit-Oriented Development: Developing a Strategy to Measure Success, Research Results Digest 295*. Washington D.C.: National Cooperative Highway Research Program, Transportation Research Board, 2005. Retrieved from [http://www.trb.org/news/blurb\\_detail.asp?id=4940](http://www.trb.org/news/blurb_detail.asp?id=4940)

TRB's National Cooperative Highway Research Program (NCHRP) Research Results Digest 294: Transit-Oriented Development: Developing a Strategy to Measure Success identifies and evaluates various indicators of the impacts of transit-oriented development, provides the results of a survey of transit-oriented development indicators, and identifies ten indicators that may be used to systematically monitor and measure the impacts of transit-oriented development.

Resource Media. (2007). *Talking TOD: A Communications Guide for Promoting Transit-Oriented Development in the Bay Area*.

Even though Bay Area residents are very receptive to the concept of TOD as a way to address some of the region's most vexing problems, they may become opponents of TOD if they perceive it as a threat to the integrity and livability of their neighborhoods and communities. Building broad public support for TOD will require a focused and disciplined approach to messaging and communications that appeals to core human values and highlight the concrete benefits TOD can bring to people's everyday lives.

Rhindress, M., Lynch, F., Bregman, S., Reichman, R., Coopersmith, N. & Dunning, J. (2008). *TCRP Report 122: Understanding How to Motivate Communities to Support and Ride Public Transportation*. Washington D.C.: Transportation Research Board. Retrieved from [http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp\\_rpt\\_122.pdf](http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_122.pdf)

This project's objectives were twofold. The first objective was to identify—through qualitative and quantitative research—the perceptions, values, and decision-making processes that lead to behaviors that support public transportation. The second objective was to determine the most effective communications strategy for motivating individuals, specifically those who are neutral or favorable in their attitudes toward public transportation, to act in support of public transportation.

Rose, G. (2006). *Evaluation of the 2005 University Travelsmart Initiative: La Trobe, Melbourne and Monash Universities*. Research Report ITS-RR-06-1001. Victoria, Australia: Monash University, Institute of Transportation Studies. Retrieved from: [http://www.travelsmart.vic.gov.au/doi/doiect.nsf/2a6bd98dec287482ca256915001cff0c/1050ab055dd738b4ca25719a0013980b/\\$FILE/Uni%20TravelSmart%202005%20Evaluation%20Final%20Report.pdf](http://www.travelsmart.vic.gov.au/doi/doiect.nsf/2a6bd98dec287482ca256915001cff0c/1050ab055dd738b4ca25719a0013980b/$FILE/Uni%20TravelSmart%202005%20Evaluation%20Final%20Report.pdf)

This report documents an evaluation of the TravelSmart initiative run at La Trobe, Melbourne and Monash Universities in 2005. TravelSmart stimulated about 11 percent of students to either try or use non-automobile travel modes at La Trobe and Monash Universities, while the impact was about half that (around 6 per cent) at the University of Melbourne. Students who received the TravelSmart packs as part of enrolment generally expected to be greater users of green travel modes at the time of enrolment and that continued through to their actual mode usage. Information about public transport and carpool services were the most highly valued components of the TravelSmart initiative.

San Mateo County Transit District, et al. (2007). *San Mateo County Transit-Oriented Development Opportunity Study, Final Report*.

This study assesses opportunities and constraints and includes action plans for advancing TOD adjacent to Caltrain and BART stations in San Mateo County. The study is divided into two phases. Phase I includes a presentation of existing conditions, preliminary market analysis, assessment of opportunities and constraints, and recommendation of station areas. Phase II includes further analysis and recommendations for five station areas.

TransForm. (2007). *TravelChoice – Alameda*. Retrieved from: <http://transformca.org/files/travelchoice-alameda-presentation.pdf>

TravelChoice, a program to reduce driving and congestion while promoting physical activity, was conducted in the city of Alameda and in Oakland's Fruitvale neighborhood in 2006. TravelChoice connects interested residents with information and incentives to add more walking, bicycle riding, public transit, and carpooling into their daily routines. Outreach in Alameda was conducted by phone and door-to-door over a period of 8 weeks. The program reached more than 4,800 households, including one-on-one discussions with 3,100 of those households. In Fruitvale, over 6 weeks, over 3,000 households were contacted, including discussions with 2500 of them.

Nelson Nygaard evaluated project effectiveness using a one-day travel diary, showing that the TravelChoice program reduced auto trips and increasing transit ridership in Alameda. Drive-alone trips were reduced 14% in the Alameda program, primarily due to a 34% increase in transit usage and a 5% increase in carpooling. Despite a multi-pronged effort, an inadequate number of survey responses in the Fruitvale district resulted in inconclusive data.

Venner, M. & Ecola, L. (2007). Financing Transit Oriented Development: Understanding and Overcoming the Obstacles. *Journal of the Transportation Research Board*, 1996: 17-24. Retrieved from <http://pubsindex.trb.org/document/view/default.asp?lbid=802339>

While the development and lending community have become much more aware of TODs in the past five years, the lending process remains highly institutionalized and compartmentalized. TOD developers still

face significant challenges in getting financing and structuring their deals. After a brief review of common sources and structures of financing, the paper details financing obstacles that TOD developers face, starting with the increasingly high risk attached to construction lending and the FDIC's recent actions emphasizing increased bank oversight in this area. Complexity, design and construction challenges with mixed-use and related lender concern compound the difficulties presented by the relative newness of the mixed-use, TOD product compared to the conventional real estate products that are underwritten and traded on the secondary market. This puts more pressure on TOD developers to come up with a solid equity position and prove they have the know-how and wherewithal to carry a risky project through. Strategies to overcome these barriers to TOD finance include structuring uses to meet existing product categories, value engineering and the use of alternative building methods and materials, use of information management systems, bringing in large or experienced partners, and recruiting/organizing higher equity, patient investment. Finally, presenting the local and national market demand for TOD may help further financiers understanding of the unique benefits offered by TOD and potential upside. Local governments can help by developing supportive plans and zoning and zoning, building public support, and streamlining the process to create a more predictable environment for developers and lenders.

Washington Metropolitan Area Transit Authority (WMATA). (2006). *2005 Development-Related Ridership Survey Final Report*. Retrieved from [http://reconnectingamerica.org/public/display\\_asset/2005developmentrelatedridershipstudy?docid=304](http://reconnectingamerica.org/public/display_asset/2005developmentrelatedridershipstudy?docid=304)

The purpose of the 2005 Development Related Ridership Survey was to update a 16-year old study that surveyed the travel behavior of persons traveling to and from office, residential, hotel and retail sites near Metrorail stations. The 2005 effort sought to determine if modal splits for these land uses have changed over time and whether certain physical site characteristics still impact transit ridership. The 1987 and 1989 studies found a relationship between the distance at which a building (office, residential, retail or hotel) is sited from the rail station and the amount of transit ridership it generates. The 2005 effort sought to determine if this relationship still bears out and if there are additional variables that also might show a strong relationship to transit ridership. Some of the additional variables tested include: quality of the pedestrian environment, housing density in the station area, job density in the station area, attractiveness of automobile access, and the availability of transit subsidies. Similar to the earlier studies, the 2005 survey targeted high-density 2005 survey results confirmed previous findings that the walking distance between a site and the Metrorail station affects transit ridership. In general, the closer a site is to the station, the greater likelihood those traveling to/from or within a site choose Metrorail as their travel mode. Based on the survey results, this relationship was stronger for residential sites than for office sites.

Zhou, B. & Kockelman, K. (2008). Self-Selection in Home Choice: Use of Treatment Effects in Evaluating the Relationship Between the Built Environment and Travel Behavior. *Journal of the Transportation Research Board*, 2077: 54-61. Retrieved from: [http://www.ce.utexas.edu/prof/kockelman/public\\_html/TRB08SelfSelection.pdf](http://www.ce.utexas.edu/prof/kockelman/public_html/TRB08SelfSelection.pdf)

The study examined the issue of self-selection's role in shaping travel patterns, by impacting one's home location choice, using a latent index model to ascertain certain travel impacts of neighborhood type in Austin, Texas. This treatment/no-treatment approach is a meaningful advance in models of self-selection effects, and requires estimation of three straightforward models. Here, the treatment is defined to be one's residence in a suburban or rural zone, rather than Austin's central business district and nearby urban zones. The results of models of vehicle-miles traveled suggest that this dichotomous distinction of neighborhood types does not offer evidence of significant treatment effects. Essentially, the average treatment effect (from moving a CBD or urban zone household to a suburban or rural zone in the Austin area) is estimated to increase household VMT by just 3.86 mi/day, or just 22% of the observed distinction between such central and noncentral households (17.1 mi/day), all other control variables held constant.



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